

exceeds 20%, and a lubricating film of perfluoroether having at least one functional group provided on the protective coating,

a driving part for driving the magnetic recording medium, a magnetic head having a recording part and a reproducing part,

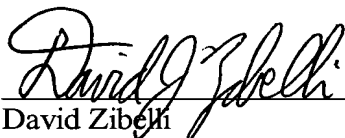
a recording reproducing signal processing part magnetic head, and a magnetoresistive head as the reproducing part of the magnetic head.

**REMARKS**

Substantive examination and allowance in due course are solicited.

The Office is authorized to charge any fees due under 37 C.F.R. § 1.16 or 1.17 to Deposit Account No. 11-0600. Should there be any questions concerning this matter, the Examiner is invited to contact Applicants undersigned attorney.

Respectfully submitted,

  
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Dated: October 28, 2002

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DCO 429755 v1

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please amend claims 1 and 8 as follows.

1. (Amended) A magnetic recording medium, characterized in that in the magnetic recording medium having a magnetic film on a non-magnetic substrate by intercalating at least an under layer, the proportion of functional groups per 1- carbon atoms in a diamond-like carbon protective coating mainly composed of carbon and includes at least one of the -COOH, -C=O, and -CNH<sub>2</sub> as the functional group, for protecting the magnetic film exceeds 20%.

8. (Amended) A magnetic storage apparatus, comprising a magnetic recording medium that in the magnetic recording medium having a magnetic film on a non-magnetic substrate by intercalating at least an under layer, a proportion of functional groups per 100 carbon atoms in a diamond-like carbon protective coating mainly composed of carbon an includes at least one of the -COOH, -C=O, -COH, and -CNH<sub>2</sub> as the functional group, for protecting the magnetic film exceeds 20%, and a lubricating film of perfluoroether having at least one functional group provided on the protective coating,

a driving part for driving the magnetic recording medium,

a magnetic head having a recording part and a reproducing part,

a recovery reproducing signal processing part for giving and receiving a signal to and from the magnetic head, and a magnetoresistive head as the reproducing part of the magnetic head.

Please add new claims 9-11 as follows:

9. (NEW) A magnetic recording medium, characterized in that in the magnetic recording medium having a magnetic film on a non-magnetic substrate by intercalating at least an under layer, the proportion of functional groups per 100 carbon atoms in a diamond-like carbon protective coating mainly composed of carbon and included -COOH, -C=O, -COH, and -CNH<sub>2</sub> as the functional group, for protecting the magnetic film exceeds 20%.

10. (NEW) The magnetic recording medium according to claim 9, wherein a lubricating film of perfluoroether having at least one functional group is provided on the protective coating.

11. (NEW) A magnetic storage apparatus, comprising a magnetic recording medium that in the magnetic recording medium having a magnetic film on a non0magnetic substrate by intercalating at least an under layer, a proportion of functional groups per 100 carbon atoms in a diamond-like carbon protective coating mainly composed of carbon and included -COOH, -C=O, -COH, and -CNH<sub>2</sub> as the functional group, for protecting the magnetic film exceeds 20%, and a lubricating film of perfluoroether having at least one functional group provided on the protective coating,

a driving part for driving the magnetic recording medium, a magnetic head having a recording part and a reproducing part,

a recording reproducing signal processing part magnetic head, and a magnetoresistive head as the reproducing part of the magnetic head.